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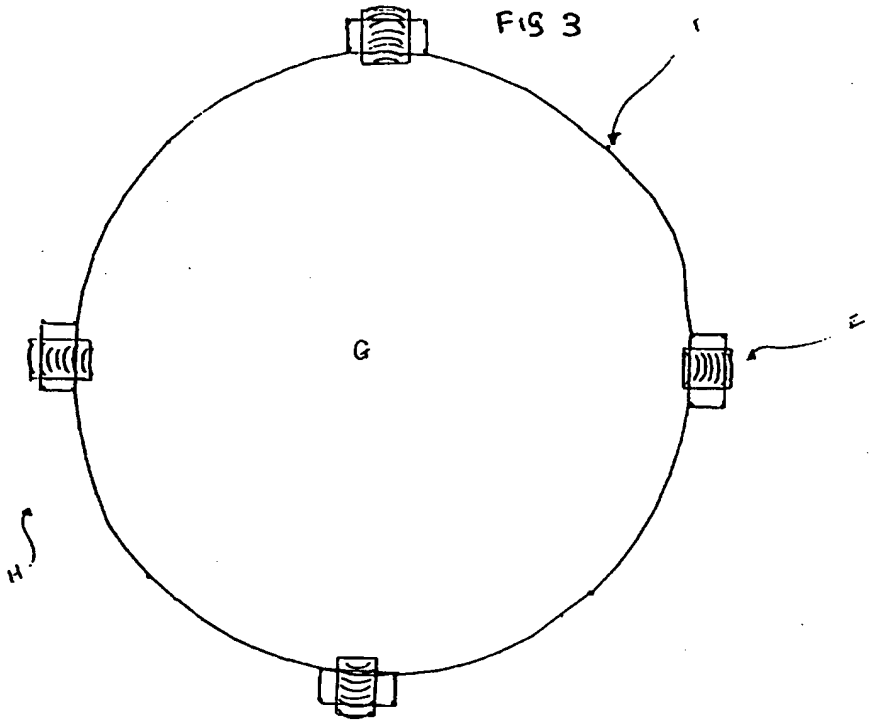
(56) Documents Cited
GB 2257377 A GB 2064349 A US 4388188 A
US 3700108 A

(58) Field of Search
UK CL (Edition O) B1D DNKA DPBB DPBC DPBX DPHA
INT CL^6 E02B 15/00 15/04 15/06 15/08 15/10

(54) Oil Slick Harvester

(57) An oil slick harvesting vessel E has a mid mounted endless belt with scoops fro conveying spilled oil from one side of the vessel to the other and hydraulically deployable and extendable end panels which can be connected to other like vessels to encompass an area G. Preferably the panels are hinged together and sealable to an end panel of a further vessel. Preferably each vessel is self-powered and manoeuvred and may be fitted with booms and scavenging pumps. Preferably the vessels are light enough to be transported by air.



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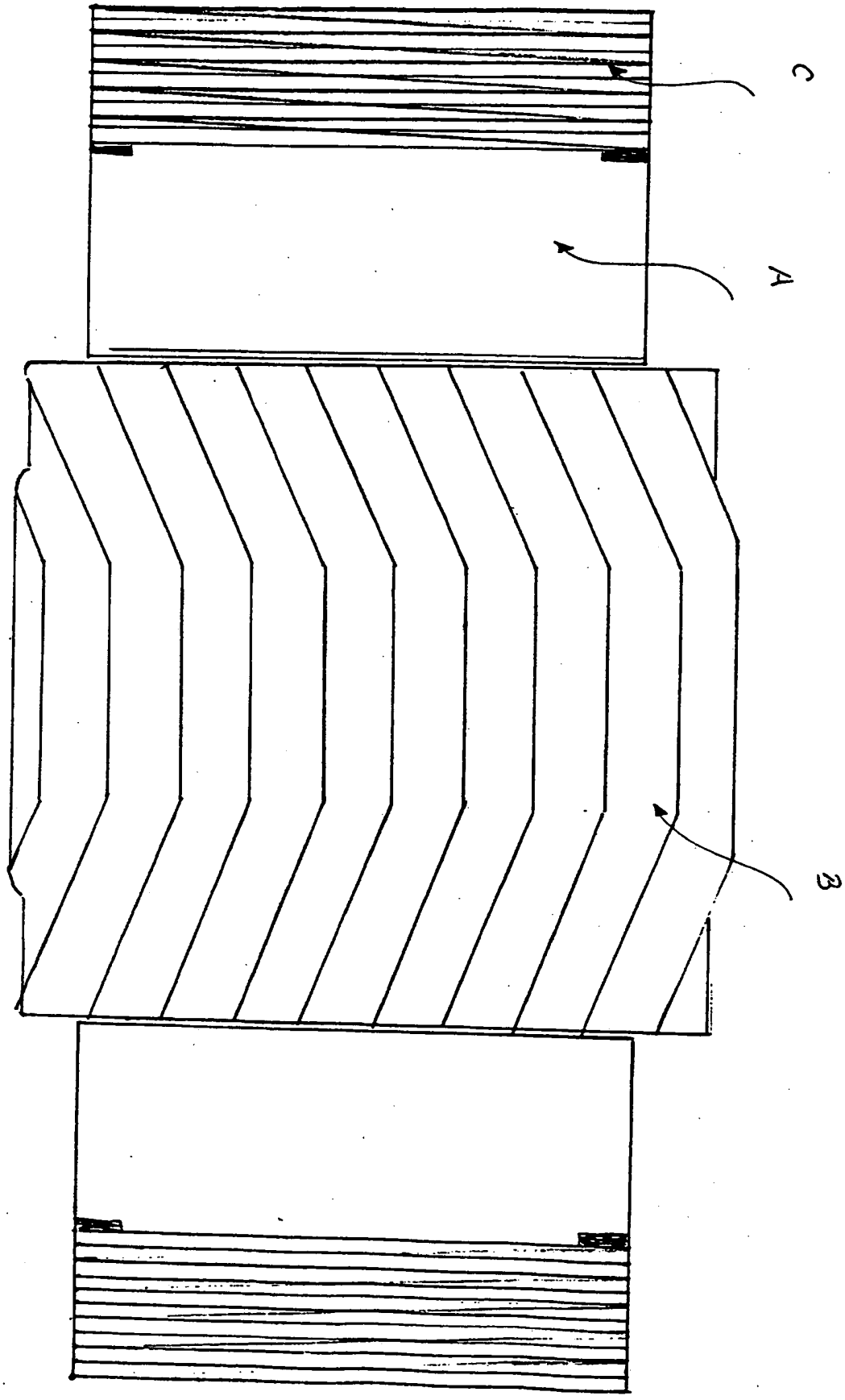

Fig 1

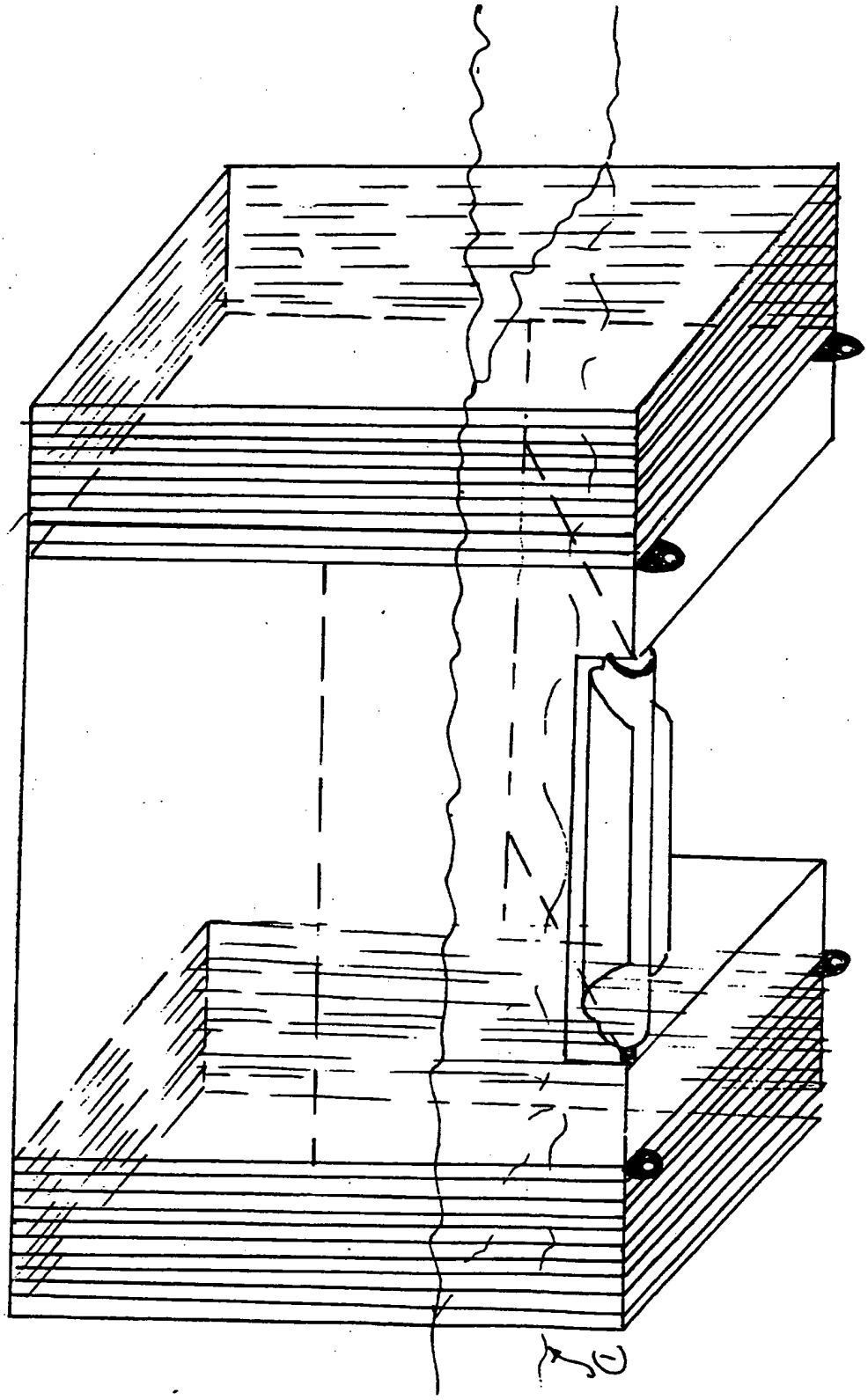

Fig 2

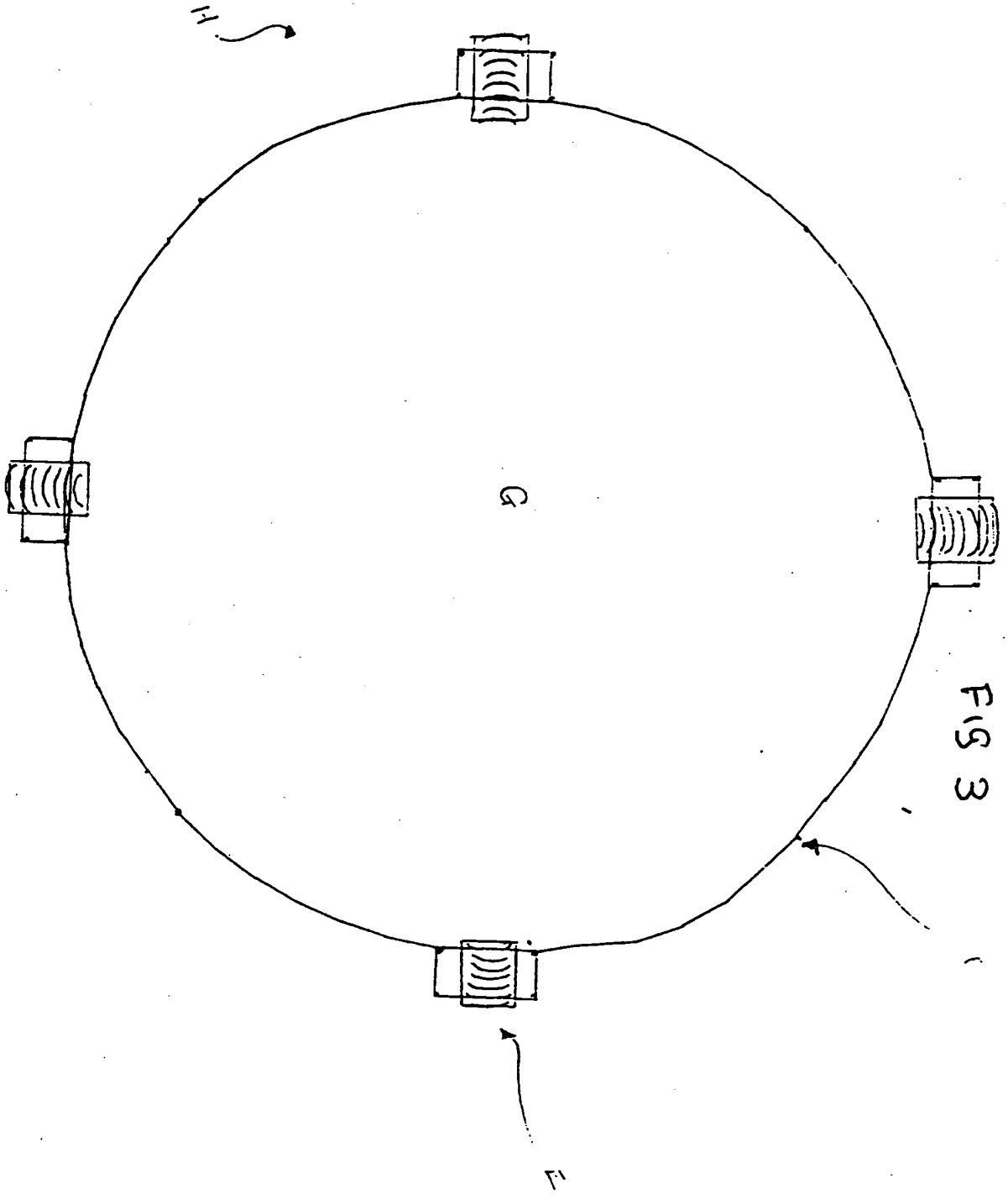

FIG 3

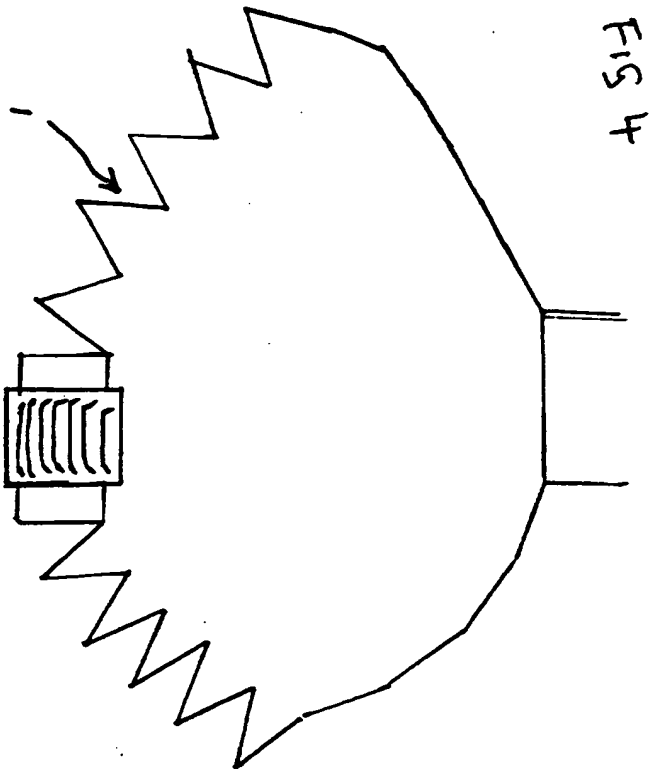

Fig 4

OIL SLICK/SPILLAGE HARVESTER

FIELD OF INVENTION

This invention relates to a series of floating vessels specifically designed to automatically harvest oil slicks.

SUMMARY OF INVENTION

According to the present invention there is provided an apparatus to automatically collect oil from water whether it be an oil slick or spillage from a vessel or container or pipe or platform. The apparatus includes a series of oblong vessels with hinged partitioning panels at either end of each vessel. Each vessel is fitted with a motorised belt or belts fitted with scoops that convey surface matter over the vessel. The objective is to transport each vessel to an oil slick or spillage by helicopter or other transport and place the vessels in the oil slick. Each vessel is designed to allow the partitioning panels to extend hydraulically and the furthermost panel to connect and seal with the furthermost extended panel of another vessel. When all vessels are in place and connected to each other the oil slick is encompassed within the surrounding vessels. Each vessel is fitted with one or more conveyor belts fitted with scoops that convey surface matter into the encompassed part of the apparatus. If located or placed in an oil slick the conveyor belts on each vessel would convey surrounding oil and water mix from outside the encompass oil into the encompassed oil. Due to the characteristics of oil, the oil will float on the surface of water. Any oil and water introduced within the encompassed area will displace its own equivalent mass in water through the bottom unsealed part of the connected vessels. Any water collected or pumped into the encompassed area would pass through the oil and mix with the water below the oil displacing its own volume through the bottom. Although oil will float on water within the vessels, if contained within a vessel with an open top and bottom only a small proportion will float above the external water level. The majority of the oil will be contained below the water level. Vessels can be of any shape or size and must be designed to be transported preferably by helicopter to facilitate a speedy installation. vessels can be manned or unmanned to work automatically if required. Taking 16 vessels each measuring 10 feet

wide and 20 feet long each with ten partitions at each end, each partition measuring 10 feet by 20 feet deep. would encompass an area into which 92,928,000 gallons could be harvested. The encompassed oil can be pumped out to a separate tanker either during collection or when full. Each vessel is a self contained unit with power to operate the conveyor belt or belts and to extend and withdraw hydraulically the partitions. Each vessel is fitted with its own drive unit to allow manoverability when afloat. Scavenger pumps can also be fitted to the vessels to assist in the harvesting. Booms can be fitted at strategic points to draw the oil slick towards the harvesting vessels.

BRIEF DESCRIPTION OF THE DRAWINGS

DRAWING 1/4 IS A PLAN VIEW OF THE VESSEL IN ACCORDANCE WITH THE PRESENT INVENTION IN THE TRANSPORTABLE POSITION . (A) IS THE PLATFORM TOP . (B) IS THE CONVEYOR BELT . (C) IS THE SIDE PANELS

DRAWING 2/4 IS A PERSPECTIVE VIEW OF THE VESSEL ILLUSTRATING THE PROPORTIONAL AMOUNT OF THE VESSEL ABOVE AND BELOW THE WATER LINE IN THE CLOSED POSITION.

DRAWING 3/4 IS A PLAN VIEW OF FOUR VESSELS WITH ALL SIDE PANELS EXTENDED AND INTERLOCKED. (E) IS A PLAN VIEW OF ONE VESSEL. (F) CONNECTING POINT OF TWO VESSELS. (G) ENCOMPASSED OIL SLICK WITHIN VESSELS. (H) OIL SLICK AREA OUTSIDE FROM WHICH THE VESSELS HARVEST.

DRAWING 4/4 ILLUSTRATING ONE VESSEL WITH SIDE PANELS (I) PARTIALLY EXTENDED.

CLAIMS

OIL SLICK/SPILLAGE HARVESTER

1. A series of floating vessels Specifically designed to automatically harvest oil slicks.

2. The apparatus as in claim 1 includes a series of oblong vessels with hinged partitioning panels at either end of each vessel. Each vessel is fitted with a motorised conveyor belt or belts fitted with scoops that convey surface matter over the vessel.

3. The apparatus as claimed in 1 or 2 where each vessel is designed to allow the partitioning panels to extend hydraulically and the furthermost panel to connect and seal with the furthermost extended panel of another vessel.

4.The apparatus as claimed in 3 where each vessel is fitted with one or more conveyor belts fitted with scoops that convey surface matter into the encompassed part of the apparatus.

5. The apparatus as claimed in 4 where each vessel is a self contained unit with power to operate the conveyor belt or belts and to extend and withdraw hydraulically the partitions. Each vessel is fitted with its own drive unit to allow manoverabiltiy when afloat. scavenger pumps can also be fitted to the vessels to assist in the harvesting. Booms are fitted at strategic points to draw the oil slick towards the harvesting vessels.

6. An Oil Slick/spillage Harvester substantially as herin described and illustrated in the accompanying drawings.

The Patent Office

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Claims searched: 1-6

Examiner: Dave McMunn
Date of search: 10 October 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.6): E02B 15/00, 15/04, 15/06, 15/08, 15/10.

Other: -

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2,257,377 A	(UNIV OF EDINBURGH). Note vessels 2, 2A	1
A	GB 2,064,349 A	(ROSTAMO). See Figs	2
X	US 4,388,188	(MORRIS). Note vessels 20, 22, 92 - one example of this type	1
X	US 3,700,108	(RICHARDS). Note end panels 24 & endless belts 20, 22	1, 2

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.